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ABSTRACT

This report presents an overview of the Oregon Studies in educational research, development, diffusion and evaluation (RDD&E). Five major classes of information were sought: a) knowledge about the area from others who had done previous work in this field, b) conceptual views and tentative maps of the structure and nature of the domain, c) a framework to guide the work and to determine the types of data to collect, d) methods to obtain the information outlined in the conceptual framework, and e) data collected from visiting 20 sites found to be conducting RDD&E work. Outputs of projects were the focus for data collection and analyses. Conceptually derived categories for outputs classified them by their structure, function, and character. For each output, the output standards used; the tasks performed to generate the output; and the knowledges, skills, and sensitivities that enabled the output to be generated were identified. The analyses of the 20 projects yielded 962 project outputs, each classified by the conceptual categories. Results indicated that the greatest response differences were between development and evaluation projects, and the least differences were found between research and evaluation project activities. Six implications were noted. Further research is recommended. (MJM)

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Research Implications from the Oregon Studies: The Generation of Information to Support Long-Term Manpower Studies of Planning for Training Programs in Educational RDD&E

A Presentation for AERA Symposium 30.9

by Harry L. Ammerman

7 April 1972

Content Outline:

1. An overview of the Oregon Studies in educational RDD&E.
2. Classes of information sought.
3. Some RDD&E activity differences as a function of project focus.
4. Some implications for research and training.

The Oregon Studies were conducted by Teaching Research under a grant from U. S. Office of Education

H. Del Schalock, Principal Investigator

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In the spring of 1970 the Training Branch of the U. S. Office of Education, National Center for Educational Research and Development, enunciated a plan to effect change in the preparation of educational RDD&E personnel.

The plan for change reflected a strategy that can best be described as "beginning at the beginning." It incorporated three interrelated lines of activity: the creation of a conceptual and empirical base on which to build functional training programs; the design of more effective and efficient approaches to training; and the development of instructional materials that reflect desired changes in both content and procedure.

The Oregon Studies, carried out by Teaching Research, under the direction of Dr. H. Del Schalock, were to contribute in a beginning way to the conceptual and empirical base called for in the plan. Consistent with the exploratory nature of this activity, and the charge to provide an initial mapping of the domain of educational RDD&E, the Oregon Studies followed a pattern that is typical of early exploration and mapping efforts.

a. First, we sought to acquire knowledge about the area from others who had traversed this terrain before us. This resulted in the compiling of 86 articles from the literature that define, describe, differentiate, or relate the activities labeled as research, development, diffusion, and evaluation. This literature is made available to others in a single source, a 1200-page volume published as Volume II of the study results.

b. Next, we sought to obtain conceptual views and tentative maps of the structure and nature of the domain. This was done by commissioning the preparation of three papers by talented

persons concerned with the field of RDD&E. These writers concentrated on different aspects of the domain.

c. From all of this a conceptual framework was developed to guide our route and to determine the types of data to collect. As in all such initial mapping explorations, not all areas of the domain would be visited, nor would all characteristics of the area be described. But this conceptual framework did provide a basis for the systematic gathering of information and for interrelating such data.

The three commissioned papers and the staff-produced framework are reported in Volume III of the report series. Each paper, and the set of papers as a whole, received critical reviews by leaders in educational RDD&E, and these critiques are also reported in the volume.

d. Methods were then evolved for obtaining the information outlined in the conceptual frame. I say evolved, because numerous changes in the methodology were necessitated by the realities found when real data were obtained from the field. The final form of the methodology, with all the data collection procedures, decision rules, data reduction processes, and computer data files, are reported in Volume V of the series. This procedural methodology is one of the major outputs of the study, and it permits the gathering of comparable data on a larger scale in the future.

e. Finally, the actual traveling to the field to collect data involved visiting 20 sites found to be conducting RDD&E work. Five of these were primarily research projects, seven were development projects, three projects were involved heavily in evaluation

work, and five were major diffusion efforts. These projects were selected to display widely divergent features of the domain. Some were small two-man efforts within university settings. Others were large school district "projects" employing dozens of staff members or subcontractors. Private firms and regional laboratories also were represented. Project funding varied from about 50,000 to well over 1 million dollars. Interviews were conducted with 134 persons found working at these locations, and most of them also responded on several questionnaire forms.

Each of these projects is reported in what is labeled a "case profile." These profiles form the primary data base in the Oregon Studies. Averaging about 60 pages each, these profiles are reported in Volume IV of the series. Each profile contains descriptions of the structure and functions of the project being analyzed, the specific outputs of targeted work effort, the standards held for specific outputs, the task activities that produce individual outputs, and the enabling knowledges, skills, and sensitivities judged by the project staff to be essential to their production of the targeted work outputs.

There are five volumes in the complete report series; about 3500 pages in all. Four of these volumes will be available through the ERIC system, and all may be obtained individually on a non-profit cost basis from Teaching Research.

I mention these reports because they have implications for research and training in their own right. The compendium of literature provides a storehouse of readings that would be of use to students. The conceptual papers give very provocative notions about the nature of educational RDD&E. The case profiles provide a view of what goes on inside some

exemplary RDD&E projects. And, the methodology itself yields a variety of procedures for use by others concerned with training issues. It includes rather extensive listings of the types of operations that occur, and the types of capabilities involved in these operations.

The Development of Output Analyses

At the time that the case study approach to data collection was adopted it was still assumed that the central focus of the data within a case analysis would be the jobs or tasks performed by project personnel. As the study began to interface with real-world RDD&E, however, it was soon found that job definitions were relatively unstable. obs seemed to be defined differently by different organizations, and within a single organization differently for different projects. It was also common for jobs to change in definition several times within the life of a single project. As a consequence, jobs served poorly as the basic unit for work analysis.

Faced with this fact an alternative to job definition was sought as a focus for data collection and analysis. Outputs of projects emerged as a viable alternative since they represent relatively stable entities within the life of a project, and they probably represent the largest single source of variation in project operations.

Outputs also hold promise as relatively stable units for cross-project analyses when RDD&E activities are defined in terms of their outputs.

Conceptually-derived categories for outputs classified them by their structure, their function, and their character. Thus, outputs demonstrated structure as tangible products, as events, or as conditions obtained. They served policy setting, management, or production functions within a project. Consistent with the RDD&E focus of this study, products

demonstrated a characteristic of being either knowledge, technology, implementation, or information.

For each output, in turn, were identified the output standards used, the tasks performed to generate the output, and the knowledges, skills, and sensitivities that enabled the output to be generated. Each of these were classified by type.

The analyses of the twenty projects thus yielded 962 project outputs, each classified by the conceptual categories. Interviews conducted around 298 of these outputs yielded 1148 statements of output standards in 79 categories, 3722 tasks in 305 categories and 20 clusters, and 2497 enabling knowledges, skills, and sensitivities in 137 categories of enablers. As these numbers imply, our studies have generated a wealth of information. Nearly all of it is stored on computer, fully categorized, and with extensive project and personnel background data, it provides a storehouse for many varied data analyses as may be sought by developers of training programs for RDD&E personnel.

Some Data Results

To shortcut the data analyses for you here, I will present highly summarized results from one of the secondary data collection efforts. Though not modeled on the basis of the conceptual framework, these data do reveal significant differences between the general activities that personnel perform on RDD or E projects.*

1. Development of research tools or other information-gathering instruments is of much greater significance to evaluation projects than to development or diffusion projects.

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*Supporting data summary is attached.

2. Collection of data or information, however, is of about equal significance, regardless of the type of project.
3. Writing activities also occur quite comparably in all types of projects.

Greatest response differences were between development and evaluation projects, differing in a major way on responses to 22 of 70 general activities. Least differences were found between research and evaluation project activities, only 2 of 70 activities differing. The other comparisons ranged from 8 to 10 activities showing major differences.

A quick examination of just the data on personnel backgrounds reveals a number of interesting bits of information. Membership in professional associations was concentrated in AERA, NEA, and APA, though 10 other national associations were also represented. In research projects the major field of academic study was predominantly psychology. In development, diffusion, and evaluation projects the personnel tended to have majors in education or educational administration, but again there were many other academic disciplines represented. These other fields included educational research, guidance and counseling, psychology, and English majors. In terms of sex, it appears that diffusion projects are the only ones where the male-female ratio favors females. With respect to age, development projects appear to attract personnel over 40, while those in other types of projects tend to be younger.

Taken as a whole the personnel data do not present a picture of educational RDD&E that quite fits a "traditional" view of the field. There were proportionately fewer staff who held doctorates than expected, especially considering the high proportion of "manager" level roles

filled by personnel studied. There were also fewer publications, fewer memberships in AERA, and higher salaries than might be expected.

Implications

The general implications that may be drawn from these studies would seem to be that:

1. It is possible to conceptualize the domain of educational RDD&E, and to obtain observations of various features of this domain in such a way as to yield large amounts of information about project activities and processes.
2. These data can be reasonably categorized for computer storage, lending them to numerous detailed analyses.
3. The use of only 20 projects yielded a very large amount of inter-related data about project characteristics, personnel, and efforts to produce outputs.
4. The data are sufficiently sensitive to demonstrate differences and similarities between RDD&E at a very specific level of detail.
5. There is, of course, a domain of educational RDD&E, but it is probably much more complex than might be desired by training developers. Some of this complexity might be attributable to the current state of growth and change that is occurring in the field.
6. A rather comprehensive methodology does now exist for collecting further data about that domain, and for systematically storing and examining the composite data.

I will close this brief presentation by commenting on the utility of these results for various potential users. The data categories developed for project and for personnel background information have obvious usefulness

for manpower studies, but much of this is not new to those interested in such data. The real significance, I believe, comes in the wealth of data and their interrelationships that have been established for describing the generation of project outputs.

Throughout the study there was an effort to determine just what information was desired by personnel developing training programs. Considerable uncertainty and great variation were expressed. And this was understandable. It is difficult to specify just what information one needs to develop a special curriculum. But now with the availability of the data from this study, it would seem most appropriate for trainers to examine the nature and level of detail of this data, and then to react to it. They need to indicate their precise data needs in relation to what this study obtained. We sincerely hope our work will thus lead to more definitive specifications of what information will be of greatest usefulness for those who must develop training programs. And we thank our sponsors for providing us the opportunity to conduct this exploration.

Attachments:

1. An Overview of the Oregon Studies in Educational RDD&E.
2. A Guide to the Oregon Studies in Educational RDD&E.
3. Table: Significant Activity Differences as a Function of Project Focus, Degree Level, and Job Role.

TABLE

Significant Activity Differences as a Function of Project Focus, Degree Level, and Job Role
(Using Hemphill's 8-interval scale of activity significance)

	R	D	F	E	D	M	B	H	M	L
No. of Form 04 Respondents	12	20	31	26	30	38	21	41	41	7
No. of Form 04-A Respondents	2	15	11	22	17	25	8	21	27	2

General Categories of Work	Project Focus						Degree Level			Job Role Level		
	R-D	R-F	R-E	D-F	D-E	F-E	D-M	D-B	M-B	H-M	H-L	M-L
A. Reading			=	=	=	=	=	=	=	=		
B. Designing or planning of procedural activities for the project.	=								=			
C. Developing research tools or other information-gathering instruments				=	∠	∠		=				
D. Collecting data or other systematic gathering of information related to project goals	=	=	=	=	=	=			=	∠		
E. Analyzing data	∠		=	=								
F. Writing	=	=	=		=	=	=	=	=	=		
G. Supervising and coordinating actions of others, an/or of material resources.	=			=		=		∠		∠	Insufficient Respondents	Insufficient Respondents
H. Teaching or training.	=		=	∠			=		∠	=		
I. Meeting, consulting, or advising.				=		=	=	∠				

Specific Categories of Work	R-D	R-F	R-E	D-F	D-E	F-E	D-M	D-B	M-B	H-M
A. 1. Reading recent project-related research.	.	.	.	.	.	.	.	.	.	.
2. Reading scholarly essays.	.	.	.	.	.	.	.	.	.	.
3. Reading methodological documents presenting information regarding methods of inquiry and/or analysis.	.	.	.	.	∠	.	.	.	.	.

NOTE: ∠ 1st rates item of higher significance than does 2nd.) "Higher" means rating difference of 1.5 or more.
∠ 2nd rates item of higher significance than does 1st.)
= 1st and 2nd ratings are about equal - considered similar if rating difference is 0.5 or less.
. Signifies no entry, used only for reader's convenience in lining up the data.
* Item appears only on Form 04-A.
Focus: R = Research, D = Development, F = Diffusion, E = Evaluation
Degree: D = Doctorate, M = Masters, B = Bachelors
Job Role: H = High (top management), M = Medium (intermediate levels), L = Low (staff only)

TABLE (continued)

Specific Categories of Work	R-D	R-F	R-E	D-F	D-E	F-E	D-M	D-B	M-B	H-M
A. 4. Reading "in-house" materials and correspondence.	·	·	·	·	·	·	·	·	·	·
*5. Editing and/or proofing of printed materials.	·	·	·	↘	↘	·	·	·	·	·
B. 1. Identifying relevant variables for consideration.	·	·	·	·	·	·	↘	↘	·	↘
2. Developing conceptual frameworks or general patterns of project design.	↘	↘	·	·	↙	·	·	↘	·	↘
3. Developing methodologies to be used in the project.	·	·	·	·	·	·	·	↘	·	↘
4. Organizing a coherent program of activities.	·	·	·	·	·	·	·	·	·	↘
5. Designating sampling procedures.	·	·	·	·	·	·	·	↘	·	·
6. Designating general statistical treatment to be used.	↘	↘	·	·	↙	↙	↘	·	·	·
7. Designing system models for computer application to data.	↘	↘	·	·	↙	↙	↘	↘	·	·
*8. Formulating hypotheses or questions to be answered by research	·	·	·	·	·	·	↘	·	·	·
*9. Determining constraints to problem solution, such as time, money, personnel, and market factors.	·	·	·	·	↙	·	·	·	·	↘
*10. Developing budgets for tasks or projects.	·	·	·	↙	↙	·	·	·	·	↘
*11. Planning and/or makin g arrangements for field tests, training, trial centers, demonstrations, installations, etc.	·	·	·	·	·	·	·	·	·	·
*12. Planning of behavioral, attitudinal, and/or learning change in some target group.	·	·	·	·	·	·	·	·	·	·
C. 1. Constructing questionnaires.	·	·	↙	·	↙	↙	·	·	·	·
2. Developing test items.	·	·	·	·	·	·	·	·	·	·
3. Developing interview outlines and schedules.	↘	·	·	·	↙	·	·	·	·	·
4. Developing observational techniques	·	·	·	·	·	·	·	·	·	·

TABLE (continued)

Specific Categories of Work	R-D	R-F	R-E	D-F	D-E	F-E	D-M	D-B	M-B	H-M
C.*5. Identifying appropriate measures for events, variables, or other measurement concerns.	·	·	·	·	∠	∠	·	·	·	·
*6. Fabricating of physical items, such as response recorders, stimulus presentation devices, room partitions or furniture, prototype devices, etc.	·	·	·	·	·	·	·	·	·	·
D. 1. Interviewing.	·	·	·	·	·	·	·	·	·	·
2. Surveying literature.	·	·	·	·	·	·	·	·	·	·
3. Conducting laboratory experiments.	·	·	·	·	·	·	·	·	·	·
4. Administering questionnaires.	·	·	·	·	·	·	·	·	·	·
5. Administering tests.	·	·	·	·	·	·	·	·	·	·
*6. Performing aspects of job and/or task analysis.	·	·	·	·	·	·	·	·	·	·
*7. Deriving or otherwise verifying the merit and/or relevance of student performance objectives (behavioral objectives).	·	·	·	∠	∠	·	·	·	·	·
*8. Collecting and organizing information relevant to preparation of a public information, dissemination, product distribution, or marketing plan.	·	·	·	·	·	·	·	·	·	·
E. 1. Preparing or using frequency tallies and/or marginal distributions (as in Chi-Square tests).	·	·	·	·	∠	∠	·	·	·	·
2. Computing or using frequency of central tendency (i.e., means, medians, modes, arithmetic average).	·	∠	·	·	∠	∠	·	·	·	·
3. Computing or using correlation coefficients, including simple correlational analyses.	·	·	·	·	∠	∠	·	·	·	·
4. Computing and interpreting simple tests of significance of differences in observed data (such as t-tests).	∠	·	·	·	∠	∠	·	·	·	·

TABLE (continued)

Specific Categories of Work	R-D	R-F	R-E	D-F	D-E	F-E	D-M	D-B	M-B	H-M
E. 5. Computing and Interpreting data from analysis of variance designs.	✓	✓	·	·	✓	✓	✓	·	·	·
6. Computing and interpreting regression analyses.	✓	·	·	·	✓	✓	·	·	·	·
7. Examining and interpreting non-quantified information (such as verbal responses, observed activities, etc.).	·	·	·	·	·	·	✓	·	✓	·
8. Computing item analyses of test items.	·	·	·	·	·	·	·	·	✓	·
*9. Drawing implications from the results of prior research (interpret, evaluate, and synthesize the relevant literature).	·	·	·	·	·	·	·	·	·	·
*10. Analyzing the nature of various audiences or "publics" to prepare appropriate communications.	·	·	·	·	·	·	·	·	·	✓
F. 1. Writing correspondence.	·	·	·	·	·	·	·	·	·	·
2. Writing research proposals.	✓	·	·	·	✓	·	✓	✓	·	·
3. Writing major project reports.	✓	·	·	✓	✓	·	·	✓	·	·
4. Writing interim, status, or periodic reports.	·	·	·	✓	✓	·	·	·	·	·
5. Writing for professional publications.	✓	✓	·	·	·	·	✓	✓	·	✓
6. Writing administrative reports.	·	·	·	✓	✓	·	·	·	·	·
7. Writing literature surveys.	·	·	·	·	·	·	·	·	·	·
*8. Writing of computer programs for data handling or analysis.	·	·	·	·	·	·	·	·	·	·
*9. Writing of programmed instruction outlines and/or frames.	·	·	·	·	·	·	·	·	·	·
*10. Writing of detailed lesson plans.	·	·	·	·	·	·	·	·	·	·
G. 1. Procurement of project staff.	·	·	·	·	·	·	✓	✓	·	✓
2. Establishing contact with and participation by other personnel or agencies.	·	·	·	·	·	·	·	·	·	·
3. Reviewing performance of project personnel	·	·	·	·	·	·	✓	✓	·	✓

TABLE (continued)

Specific Categories of Work	R-D	R-F	R-E	D-F	D-E	F-E	D-M	D-B	M-B	H-M
G. 4. Communicating personnel evaluations to individuals.	·	·	·	·	·	·	·	·	·	·
5. Scheduling of project activities.	·	·	·	·	·	·	·	·	·	∠
6. Allocating of responsibilities to project personnel.	·	·	·	·	·	·	·	·	·	∠
H. 1. Participating in classroom instruction.	·	·	·	·	·	·	·	·	·	·
2. Participating in conduct of seminars or workshops.	·	·	·	·	·	·	·	·	·	·
3. Providing on-the-job training to individuals.	·	·	·	∠	·	·	·	·	·	·
4. Designing appropriate learning situations.	·	·	·	·	·	·	·	·	∠	·
*5. Conducting demonstrations of development products before various groups, and answering questions asked by members of the group.	·	·	·	·	·	·	·	·	·	·
*6. Preparing visual materials, such as films, slides, video tapes, visual teaching aids, etc.	·	·	·	·	·	·	·	·	·	·
I. 1. Contacts with funding sponsor or monitor	·	∠	·	·	·	·	·	·	·	∠
2. Contacts with higher agency management for review of project.	·	∠	∠	∠	∠	·	·	·	·	·
3. Presentations made at professional meetings to communicate various aspects of project activities or results.	·	·	·	·	·	·	·	∠	·	·
4. Meeting with visiting personnel from other agencies.	·	·	·	·	·	·	·	·	·	·
*5. Conferring with colleagues, staff, and/or students.	·	·	·	·	·	·	·	·	·	·
*6. Interacting directly with personnel of other agencies, such as for field tests, at trial learning centers, potential users of R & D products, etc.	·	·	·	·	·	·	·	·	·	·
*7. Speaking before public groups or specific target audiences.	·	·	·	·	·	·	·	·	·	·